

DOCUMENT RESUME

ED 209 714

CS 503 669

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TITLE You Can't Play Marbles--You Have a Wooden Hand:
Communication with the Handicapped.
PUB DATE Nov 81
NOTE 30p.; Paper presented at the Annual Meeting of the
Speech Communication Association (67th, Anaheim, CA,
November 12-15, 1981).

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS *Childhood Attitudes; *Classroom Communication;
Communication (Thought Transfer); *Communication
Problems; *Communication Research; Elementary School
Students; *Mainstreaming; *Physical Disabilities

ABSTRACT

A two-year long study investigated the influence of being in a mainstreamed classroom on nonhandicapped children's abilities to communicate with the handicapped. The study involved three groups of students: (1) 66 nonhandicapped, nonintegrated (those in classes without handicapped children); (2) 24 nonhandicapped, integrated; and (3) 55 handicapped only. To measure the ability of a child to adapt communication to a specific listener, each subject was shown a series of eight drawings illustrating handicapped and nonhandicapped children doing different things and asked what he or she would say to communicate a certain intention to the child in the picture. The subjects' responses were coded for their empathic adaptation to each handicap. The subjects were tested at the end of the first year of a mainstreaming program and again at the end of the second year of the program. The results indicated that both nonhandicapped and handicapped children had difficulty communicating with their handicapped peers. Being in a mainstreamed class had no impact on the communication skills of the nonhandicapped children, and no differences were found between children studied at the conclusion of the first or second years of the mainstreaming program. (FL)

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"You can't play marbles--You have a wooden hand":

Communication with the Handicapped¹

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Uncertainty in and avoidance by others are phenomena which almost every handicapped² person experiences on a regular basis. Most nonhandicapped individuals are uncertain about how they should interact with someone who is handicapped (Davis, 1961) and tend to avoid such contact (Thompson and Cundiff, 1979). When mixed (handicapped-nonhandicapped) interactions do occur, they are characterized by anxiety (Hurt and Cook, 1979) and discomfort and inhibition (Kleck, Ono and Hastorf, 1966). Most nonhandicapped persons have a predisposition to negatively evaluate the handicapped (Yuker, Block and Campbell, 1968) and to have difficulty communicating with them (Thompson, 1981). This negative treatment is known to have debilitating effects on the self concept (Meisner, Thoreson and Butler, 1967) and social skill development (Thompson, 1981) of handicapped children. In an effort to examine a potential solution to these problems, mainstreaming, the present study assessed the effect of being in a class with handicapped children on nonhandicapped children's ability to communicate with their handicapped classmates.

Mainstreaming

The impetus for mainstreaming, the inclusion of handicapped children in "regular" classes, has come from several directions. Financial (Dunn, 1968), academic (Johnson, 1962) and social factors (Newberger, 1973) have all been considerations. It has also been argued that mainstreaming handicapped

children should have positive effects on the nonhandicapped children in the classes, through increasing their awareness of and sensitivity to differences in others (Gearheart and Weishahn, 1976). While the impact of mainstreaming on the handicapped child is being thoroughly investigated by researchers (see, for example, Johnson, Lavelly and Cline, 1975; Iano, Ayers, Heller, McGettigan and Walker, 1974; McCauley, Bruininks and Kennedy, 1976; and Macy and Carter, 1978) its influences on the nonhandicapped have received only slight attention. In light of 1) evidence that most mainstreamed handicapped and nonhandicapped children are not communicating with each other (Thompson, 1980) and 2) the increasing prevalence of mainstreaming due to recent legislation (PL94-142), this question becomes even more important.

The present study chose to examine this topic through an investigation of the ability of children to adapt their communication to the handicapped. Appropriate adaptation is an essential ingredient of competent communication (Bochner and Kelly, 1974). Adaptation has frequently been examined in the literature under the title of "Listener-adapted communication." Messages which are appropriately adapted to a listener indicate that the communicator developed and utilized assumptions about the receiver of the message. It is more than just perspective taking, as it includes social perception processes in general (Delia and Clark, 1977).

A version of Alvy's (1973) procedure which assesses listener-adapted communication through the use of drawings

was modified to measure the abilities of nonhandicapped children to: 1) communicate empathically with the handicapped; and 2) adapt their communication to the functional limitations of physical handicaps. The first of these abilities refers to adapting to the emotional characteristics provided by the constraints of the situation or message receiver. This would include sending bad news differently than good news, or communicating differently to a child who is crying compared to one who is laughing. The second ability involves accurate assessment of and adaptation to the physical constraints caused by a disability, such as having difficulty running if one is on crutches. It should be noted that we are not measuring attitudes or actual communication behaviors, but communicative abilities.

Only orthopedic handicaps³ were included in this exploratory research because these limitations should be easier for the nonhandicapped to assess than the limitations caused by intellectual, emotional or learning disabilities. Since there is evidence that attitudes toward the handicapped become more positive as a function of maturity (McDaniels, 1969) a cross-sectional study of children in grades 1, 3 and 6 was undertaken to see if this also holds true with communicative abilities. In order to examine changes caused by mainstreaming over a period of time, data were collected at the conclusion of both the first and second years of a mainstreaming program.

In light of the evidence cited earlier indicating

negative reactions toward the disabled, the first hypothesis proposed that:

- H₁: Nonhandicapped children will be more empathic toward the pictures of the nonhandicapped children than towards pictures of the handicapped children.

The second hypothesis assumed that handicapped children have more knowledge about disabilities and that having a disability will make one more empathic towards others with handicaps. On the basis of this, it was suggested that these children would adapt to the limitations caused by the physical disability of the child in the picture.

- H₂: Nonhandicapped children will not adapt to the functional limitations of the disabilities in the pictures as well as handicapped children.

One of the goals of mainstreaming is improved relationships between disabled and nondisabled children (Gearheart and Weishahn, 1976). Improved communicative ability should facilitate improved relationships. There is evidence that mainstreaming has positive effects on the social acceptance of educable mentally retarded children (Sheare, 1974) and on the attitudes of classmates toward the physically handicapped (Friedman, 1975). We were interested in examining the impact of mainstreaming on communicative ability. Thus, it was posited that:

- H₃: Nonhandicapped children in integrated classes will be better able than nonhandicapped children in non-integrated classes to empathically and functionally

adapt their communication to the pictures of the handicapped children.

The fourth hypothesis was an attempt to replicate the cross-sectional improvements in adaptation noted by Delia and Clark (1977) and Alvy (1973):

H₄: Adaptation abilities will improve with age.

The next hypothesis suggested that mainstreaming would become more effective over time. This was assessed by comparing those children who participated in the study at the end of the first year of the program with those who participated at the end of the second year. This second group of children had been in the mainstreaming program for two full years. The hypothesis read:

H₅: Being in an integrated class will improve nonhandicapped children's adaptation abilities more in the second year than in the first year.

Finally, it was proposed that mainstreaming would have more of an impact on older children than on younger ones. This involved comparing first, third and sixth graders who were participating in the mainstreaming program.

H₆: Being in an integrated class will improve nonhandicapped children's adaptation abilities more with increased age.

Since children in grades 1, 3 and 6 were sampled, none of the children who participated in the study the first year participated again the second year. Thus, hypotheses 5 and 6, while they appear to overlap, are actually measuring two different processes.

METHODS

Subjects

The participants were all students in a county-wide school district in a mid-Atlantic state. Since the state is a small one, this district constitutes well over one-half of school age children in the state.

Consistent with the guidelines of Public Law 94-142, the district is attempting to provide the least restrictive environment for each child. Beginning in September, 1977, several children were mainstreamed from the special school into one of several "regular" schools. Most of the elementary age children were mainstreamed into one suburban school.

Three groups of subjects were included in this research: 1) nonhandicapped, nonintegrated (those in classes without handicapped students); 2) nonhandicapped, integrated; and 3) handicapped students. For the first group, 66 nonhandicapped children from nonintegrated classes were randomly selected from the appropriate grades in a school not participating in the mainstreaming program. To participate in the second group, one nonhandicapped child was randomly selected from each of the mainstreamed (integrated) first, third and sixth grade classes in the district. Each child in this group was in a class with an orthopedically handicapped child. This group included 24 children. A random sample of 55 orthopedically handicapped children was selected from each of the grades to serve as the third group.

As a result of pragmatic limitations the cell sizes are unequal. Nonorthogonal analyses of variance (Overall and Klett, 1972) and separate-variance estimate t-tests were utilized to account for this difference.

Procedures

The data were individually collected within the schools by the author and a female graduate research assistant. Interviews were conducted in a small, quiet room containing a table and two chairs. The same room was used within each school. Parental permission was obtained prior to each child's participation.

To measure the ability to adapt communication to a specific listener, children were shown a series of eight drawings. Order of the pictures was randomly determined for each child. The drawings showed children doing different things. Half of the children were orthopedically handicapped. Two pictures showed boys crying--one boy was missing an arm. Two showed girls standing by some marbles, and one of these girls was wearing braces on her legs. Two pictures showed boys throwing pillows; one was in a wheelchair. And two showed girls standing--one girl was using forearm crutches. The pictures were selected to represent some situations in which adaptation to the functional limitations of the handicap would be necessary and some that would not demand adaptation. This was to differentiate between children who were aware of the handicap, those who made inappropriate or unnecessary references to the handicap, and those who were

realistically and empathically aware of the limitations caused by the handicap. The situations were also chosen to represent different emotional states requiring different adaptation.

For each picture the subject was given a hypothetical situation and asked what he or she would say to communicate a certain intention to the child in the picture. For example, for the picture of the boy in the wheelchair, subjects were asked, "Let's pretend that you want to have a race with this boy. What do you think you would say to him to get him to race with you?" If the child did not respond to the initial question, he or she was asked, "Well, what do you think you might say?" This probe was followed by a rephrasing of the initial question. If the child still did not respond the experimenter went on to the next picture. Table 1 presents a brief description of each picture, along with the question used for each. The procedure was pretested to insure clarity.

Insert Table 1 about here

All responses to this measure were tape recorded and later coded according to the hierarchical schemes listed in Table 2. Responses were coded by two independent judges on both empathic adaptation and adaptation to the handicap (which was coded only for the sketches of the handicapped children). The empathic adaptation coding scheme begins with no response at all. It then follows the child's progress

through some attempt to a more and more appropriate adaptation to the child in the picture. The coding scheme for adaptation to the handicap also begins with no response. It then follows a progress covering both appropriate and inappropriate references to the handicap of the child in the picture. There were some situations which did not require mention of the handicap, and reference to it in this situation is inappropriate. This coding scheme assesses reference to the functional limitations of the handicap, but a high score shows an empathic and appropriate reference. For example, a response to the picture described above such as "Wanna race?" would be coded as Level 5 for empathic adaptation and Level 2 for adaptation to the handicap, unless the respondent was also in a wheelchair. A response such as, "I'll get a wheelchair and we can have a race" would be Level 7 for empathic adaptation and Level 6 for handicap adaptation. The second response would receive a higher score on both scales, because it shows more concern for the handicapped child's feelings and some realization that a race between a child running and another in a wheelchair is not appropriate.

Insert Table 2 about here

After the scale was developed, an attempt was made to provide some validity for it by utilizing four handicapped adults and four special education teachers. Fifty responses given by the participants were randomly selected and transcribed onto index cards. Each adult was randomly assigned

twenty of these cards and was asked to order them from lowest to highest on the adaptation of the message to the listener in the picture. They were provided with the pictures, but not with the coding scheme. The order provided by each judge was correlated with the scores which the pictures had been assigned on the original coding scheme. The average correlation was .87.

Following this, each adult was asked to select those cards in his or her set which reported responses to the pictures of the handicapped children. The picture number was noted on each index card. They ordered these pictures on the appropriateness of the adaptation to the handicap in the picture. The average correlation for this scale was .74.

Following this measure the children were given a brief intelligence test. The purpose of this test was to control for the possible effects of intelligence on adaptation abilities. The Slosson Intelligence Test, 1971 edition, was used for this purpose. Reliability of this measure is .97 (Slosson, 1971), and correlations with the Stanford-Binet test, Form L-M, range from $r=.90$ to $.98$. The test was administered orally and took about 10 to 15 minutes.

Data Analysis

The variables were analyzed by a series of nonorthogonal analyses of variance and separate-variance estimate t-tests. An analysis of covariance was computed to partial out the effect of intelligence. Reliability coefficients, or measures of agreement between the judges, were computed on both

the ratings of empathic adaptation (Pearson $r=.93$) and handicap adaptation ($r=.86$). Ratings of the two judges were averaged to yield scores for analysis. Power estimates are from the tables provided by Cohen (1977).

RESULTS

Hypothesis 1

The first hypothesis suggested a difference between the empathic adaptation scores of the nonhandicapped students toward pictures of handicapped and nonhandicapped children. This hypothesis was supported, with the responses toward the handicapped pictures ($\bar{X}=4.89$, $SD=.91$, $n=90$) significantly lower ($t=9.36$, $df=89$, $p<.001$) than responses toward the nonhandicapped pictures ($\bar{X}=5.88$, $SD=1.17$, $n=90$).

Hypothesis 2

Differences between handicapped and nonhandicapped children on adaptation to handicaps was posited in the second hypothesis. This was not supported ($t=-.17$, $df=90$, $p=.87$, $Power=.27$). The responses of the two groups were almost identical, with the mean for the handicapped children equal to 3.13 ($SD=.82$, $n=55$) and for the nonhandicapped children equal to 3.15 ($SD=.61$, $n=90$). Handicapped children are no better at adapting to the functional limitations of disabilities than are those who are not handicapped.

Hypothesis 3

The assumption behind hypothesis 3 was that mainstreaming

would improve nonhandicapped children's ability to communicate with the handicapped. This was not supported by the analysis of empathic adaptation ($t=-.22$, $df=42$, $p=.83$, $Power=.21$) or handicap adaptation ($t=1.18$, $df=39$, $p=.24$, $Power=.55$). The means for the groups may be seen in Table 3.

Insert Table 3 about here

Hypothesis 4

Changes with increasing age on both types of adaptation were suggested in the fourth hypothesis. This was supported for the measure of handicap adaptation ($F=7.68$, $df=2,142$, $p<.001$) but was not quite supported by empathic adaptation ($F=2.69$, $df=2,142$, $p<.07$, $Power=.99$). Means for these groups, which were all in the hypothesized direction, are presented in Table 4.

Insert Table 4 about here

Hypothesis 5

The fifth hypothesis proposed differences between the first and second year on both adaptation measures for the integrated, nonhandicapped children only. Neither of these was supported, although the measure of handicap adaptation showed a trend in the appropriate direction ($t=-.167$, $df=21$, $p=.10$, $Power=.65$). For this measure the year one scores ($\bar{X}=3.08$, $SD=.58$, $n=13$) were lower than scores collected in the second year ($\bar{X}=3.50$, $SD=.62$, $n=11$). The scores on

empathic adaptation were almost identical across years ($t=-.04$, $df=15$, $p=.97$, $Power=.15$; year one $\bar{X}=4.85$, $SD=.64$, $n=13$; year two $\bar{X}=4.86$, $SD=1.18$, $n=11$).

Hypothesis 6

The final hypothesis suggested that being in a mainstreamed class would become more effective with increasing age. This was not supported for empathic adaptation ($F=.14$, $df=2,84$, $p=.87$, $Power=.21$) or for handicap adaptation ($F=1.17$, $df=2,84$, $p=.32$, $Power=.13$).

Intelligence was then statistically controlled using an analysis of covariance and the hypothesis tests were repeated. All results remained as reported above.

DISCUSSION

Analysis of the data indicates that nonhandicapped children communicate less effectively with the handicapped than with the nonhandicapped on both empathic and functional levels. This finding was expected on the basis of the large body of evidence indicating that the handicapped are treated negatively by those without disabilities. However, placement in a class with handicapped children does not seem to improve these communicative skills. This was contrary to expectations and held true both at the conclusion of the first year and the second year. There were no differences between the two years. The finding that mainstreaming has no impact on the nonhandicapped children, however, must be accepted tentatively. The power estimates on these analyses

ranged from small to moderate.

An important and related finding is that the handicapped children in the study were also unable to effectively adapt their communication to the pictures of the handicapped children. If having a handicap does not enable one to communicate effectively with other handicapped individuals, what is necessary? It may be that one prerequisite for adapting to a handicapped person is being able to adapt communication in general. Other research (Thompson, 1981) has shown that handicapped children tend to be deficient in general communicative abilities because they have fewer opportunities for interaction with other children. If these children generally cannot adapt their communication, they are not likely to see the need to adapt to a handicap. While general communicative ability is not the only prerequisite to handicap adaptation, there is evidence that it is one prerequisite (Thompson, 1981).

It is also interesting to note that the lack of support for this hypothesis is consistent with the argument by Goffman (1963) that even the stigmatized discriminate against other stigmatized individuals. This is particularly true when the other person with whom the handicapped person comes in contact is more severely disabled than him or herself. "The stigmatized individual exhibits a tendency to stratify his 'own' according to the degree to which their stigma is apparent and obtrusive. He can then take up in regard to those who are more evidently stigmatized than himself the

attitudes the normals take to him" (Goffman, 1963, p. 107).

Actual communicative behaviors were not measured in this study; rather, responses to hypothetical situations were assessed. We cannot be sure how representative the data are of how the children really communicate with each other. Some validity is lent to the coding scheme, however, by the ratings of the special education teachers and handicapped adults. Their ratings were basically consistent with those obtained on the original coding scheme. This also indicates that the use of such measurement techniques may have promise for future research attempts. It appears to be a manageable but effective method of categorizing responses. The coding scheme for assessing adaptation to handicaps, however, should be refined. Both its inter-rater reliability and average correlation of the adults' ratings were lower than for the other coding scheme.

Some validity is also lent to the results obtained through the use of pictures by comparing the findings of the current study with network analyses of these classrooms (Thompson, 1980). The network analyses indicate that the mainstreamed disabled children in these classes are communicative isolates--they are much less likely to participate in communication with others in their class. These findings are consistent with those of the present study.

An important implication of both the current findings and those reported by Thompson (1980) is that mainstreaming, in and of itself, does not seem to be sufficient. Simply placing a disabled child in a "regular" classroom does not

insure any impact upon the other children in the class. In order to facilitate some improvement in mainstreamed classrooms, increased contact must be encouraged by the teacher. This may be done by class exercises which specifically require interpersonal contact between children. The effectiveness of these exercises must also be empirically examined. Other techniques that have been successful at improving empathy include handicap-simulation (Wilson, 1967; Wilson and Acorn, 1970; Israelson, 1980; and Glazzard, 1979) and the use of various media devices representing factual information about disabilities (Litton, Banbury and Harris, 1980).

Inappropriate Responses

Many of the problems which the children had communicating to the pictures of the handicapped children consisted of inappropriate references to the handicap--references which were not necessary in that context. A post-hoc examination of these inappropriate references was undertaken in an attempt to further understand the communicative problems. This analysis indicated that a large number of the inappropriate references (almost 50%) represented an accurate assessment of the physical limitations caused by the disability, but the limitations were mentioned in a context which had nothing to do with the task or situation under consideration. For instance, when telling a girl pictured with crutches that she can't go to the store, there is no need to refer to the disability. Walking on crutches does not mean that one cannot go to a store. But many of the children assumed that a

physical disability eliminates many more activities than it actually does constrain. Such responses are indicative of identification of the handicapped person solely on the basis of the disability, a problem deserving of further study.

Another 40% of the inappropriate references entailed assumption of another disability in addition to the one pictured, or assumption of overall inferiority because of the handicap. Although none of the children pictured were blind, one response to a picture of the girl on crutches was, "She's probably blind. When you're blind sometimes you can't go where other people go--when somebody don't want you to come with them you can't come." Another example of this was addressed to a girl with lower leg-braces, "You can't play marbles--you have a wooden hand."

The remaining 10% of the inappropriate references indicated that the child was not able to accurately assess the physical limitations of the disability pictured. In response to the picture of the child with leg braces one boy said, "You couldn't play marbles because you can't kneel down." It would seem that this misassessment would be easier to remedy than the two other groups. This could be eliminated by teaching and discussion about the disability. The two larger groups of inappropriate references are based on stereotypes of the handicapped, which are more difficult to overcome. All of the inappropriate references were more prevalent among the younger children and among the nonhandicapped children.

Underlying the study reported herein and its findings is an important but rarely addressed idea--we can't communicate to the handicapped as we would to anyone else. Many kind-hearted individuals have urged us to treat the disabled as we treat others. The fallacy here is assuming that we treat all other people in a similar way. Generally, we treat people as individuals. This is what we also must do with the handicapped--adapt our communication as necessary to the person. This means the handicap itself may sometimes be a factor requiring adaptation; many other times it will not be. Most importantly, the handicap should not be the only characteristic to which we adapt. The goal should be to communicate more interpersonally (Miller and Steinberg, 1975)--communicating on the basis of psychological information about the individual, not solely on the basis of information about sociological roles or cultural norms.

Limitations

This study is limited in several ways. Because it is a field study, inherent in it is lack of control over some confounding variables. The study also dealt with adaptation to only one type of handicap. Its generalizability is thus in question. Since the data are only cross-sectional, developmental conclusions must be tentative. And, as was mentioned above, actual communicative behaviors were not observed. Children were simply asked to place themselves in hypothetical circumstances. Their responses may or may not be representative of how they behave on the playground or in the

classroom.

All of these limitations must be overcome in later research attempts. In addition, the current study must be and is being expanded into a longitudinal investigation. At the same time other effects of mainstreaming on handicapped-nonhandicapped relations must be examined.

Conclusions

Although we know that mainstreaming is having some positive consequences for handicapped children, it has not helped enough. Disabled children are social isolates, poorer communicators (Thompson, 1981), and are the receivers of less empathic and appropriate communication. The goals of teachers and administrators must be to work with both handicapped and nonhandicapped children to overcome these problems. Only in this way may we truly provide the most fulfilling environment for all children.

NOTES

¹This research was funded by a grant from the Bureau for the Education of the Handicapped, Department of Education.

²A handicap is defined by Kelly and Vergason (1978) as, "The result of any condition or deviation, physical or mental, that inhibits or prevents achievement or acceptance (p. 65)."

³Kelly and Vergason (1978) define an orthopedic handicap as, "A disabling condition caused by physical impairments, especially those related to the bones, joints and muscles (p. 102)."

Table 1
Descriptions of Pictures and Questions

Picture	Question
1. Young girl standing	Pretend that this little girl just asked you if she could play with you, but she can't right now. You're supposed to tell her that she can't. What would you say to her to let her know that she can't play with you?
2. Young girl standing and leaning on tri- ceps crutches	Pretend that this girl wants to go somewhere, but you know that she can't go right now. What would you say to her to let her know that she can't go?
3. Young boy sitting in chair crying	What would you say to this little boy if you wanted to make him happy?
4. Young boy missing one arm sitting in chair crying	Let's pretend that you have decided that you wanted to play a game with this boy--a game like checkers or another board game. What do you think you would say to this boy to get him to play checkers with you?
5. Young girl wearing metal leg braces standing looking down at some marbles	Let's say you want to play marbles with this girl. What would you say to her to get her to play marbles with you?
6. Young girl standing looking down at some marbles	This little girl wants to play marbles, but you know that she can't right now. What would you say to her to let her know that she can't play marbles now?
7. Young boy throwing a pillow	Let's pretend that you were just playing with a toy that belongs to this boy. While you were playing with it, it fell and it accidentally broke. What would

Table 1 (continued)

Picture	Question
8. Young boy sitting in wheelchair throwing a pillow	you say to this boy to let him know that his toy was broken? Let's pretend that you wanted to have a race with this boy. What would you say to him to get him to race with you?

Table 2
Coding Schemes

I. General listener adaptation coding scheme

- Level 1: No response
- Level 2: Inappropriate response
- Level 3: Incomplete response but in the right direction
- Level 4: Repetition of experimenter's instruction in the response - no original ideas or wording
- Level 5: Straightforward and appropriate communication - getting the message across but no adaptation to the particular situation - original wording
- Level 6: Slight adaptation; recognition of emotional state (i.e., sorry or please)
- Level 7: Stronger adaptation - excuses made, persuasion used
- Level 8: Empathic adaptation and attempt to mollify feelings

II. Adaptation to handicap (to be used only on pictures of handicapped kids)

- Level 1: No response
- Level 2: No reference to handicap when reference would have been appropriate or when the subject did not recognize the handicap
- Level 3: Reference to handicap, but unnecessary or inappropriate
- Level 4: No reference to handicap, but reference was not necessary
- Level 5: Appropriate reference, but not strong or empathic
- Level 6: Empathic, accurate reference (i.e., appropriate offers of help or understanding)

Table 3

Differences between Children
in Integrated and Nonintegrated Classrooms

Group		Empathic Adaptation	Handicap Adaptation
Integrated class	$\bar{x}$	4.85	3.28
	SD	.90	.62
	n	24	24
Nonintegrated class	$\bar{x}$	4.90	3.10
	SD	.92	.60
	n	66	66

Table 4
Scores across Grades

Group		Empathic Adaptation	Handicap Adaptation
First:	$\bar{x}$	4.43	2.90
	SD	1.30	.64
	n	52	52
Third:	$\bar{x}$	4.87	3.16
	SD	1.15	.63
	n	57	57
Sixth:	$\bar{x}$	4.96	3.46
	SD	1.09	.73
	n	36	36

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